



APPENDIX D. PROJECT SCHEDULES AND COSTS

Yakama Nation Fisheries Resource Management

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I. SUMMARY

This appendix summarizes project schedules and estimated costs for all the program elements. They are based on a fish release plan that is expected to last until 2026 as shown in the table below. Timetables for facility development and the monitoring and evaluation plan are also developed based on program objectives.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Wenatchee																					
Broodstock Dev																					
Natural Production																					
Methow																					
Broodstock Dev																					
Natural Production																					

Estimates of the capital and operating costs cover the project's lifetime. Capital cost estimates for the proposed fish facilities system include: program planning; preliminary and final designs; project-level (such as National Environmental Policy Act [NEPA] and Endangered Species Act [ESA]) evaluations; facility development permits; land purchase; construction; and capital equipment. To minimize costs, the proposed facility plan for the Mid-Columbia Coho Reintroduction project makes extensive use of existing facilities—brood capture, rearing, and acclimation—in the region. Alternative locations have been identified for all proposed sites. It is expected that if these alternatives are used, costs will not be significantly different than those for the proposed program.

TOTAL MCCRP CAPITAL COSTS

Planning and Design	\$1,040,975
Permits	\$875,355
Capital Equipment	\$1,280,130
Multi-Function Facilities	\$3,473,294
Acclimation Facilities	\$3,252,439
TOTAL	\$9,922,193

Operating expenses include the operation and maintenance of these facilities, as well as the monitoring and evaluation program, and general and administrative project costs. Operating costs will change over time. Expenses during years when release numbers and operating costs are at their maximum are estimated to be:

PEAK ANNUAL OPERATING EXPENSES (2012)

Operation and Maintenance	\$2,282,110
Monitoring and Evaluation	\$1,255,476
Tagging	\$653,417
General and Administrative	\$428,620
SUBTOTAL	\$4,619,623
Cost Share	\$1,211,200
TOTAL	\$3,408,423

The proposed program currently shares rearing costs with National Oceanic and Atmospheric Administration (NOAA) through the Mitchell Act and monitoring and evaluation costs with Washington Department of Fish and Wildlife (WDFW) and the region's Public Utility Districts (PUD). Additional funding support may be available in the future through these agencies and others in the region.

II. INTRODUCTION

The B and C Appendices include facility descriptions, construction capital cost details, and operating cost estimates for rearing. Other project expenses, such the *PLANNING, DESIGN, AND PERMITS* capital costs and the *OTHER OPERATION AND MAINTENANCE* operating costs are detailed in Chapter IV. Following is a list of master plan facility appendices, with this appendix highlighted.

- A. FISH CULTURE GUIDELINES
- B. ALTERNATIVE AND PROPOSED PLAN EVALUATIONS
 - B.1 REARING FACILITIES
 - B.2 ACCLIMATION FACILITIES
- C. PROPOSED PLAN SITE DESCRIPTIONS AND CAPITAL COSTS
 - C.1 WENATCHEE REARING FACILITIES
 - C.2 METHOW REARING FACILITIES
 - C.3 WENATCHEE ACCLIMATION FACILITIES
 - C.4 METHOW ACCLIMATION FACILITIES

D. PROJECT SCHEDULE AND COSTS

III. PROJECT SCHEDULES

Design, permitting and construction activities are scheduled to meet the requirements of the fish release plan. New facilities are not required in the Broodstock Development phases. Natural Production Phases start in 2011 in the Wenatchee and 2012 in the Methow. New facilities will need to be operational by these dates.

The general schedule shown in Table 1 displays how each of the program facility development elements are structured within the NPCC step review process. Facility construction can begin after the Step 3 review in 2009, allowing facilities to be in use by the required dates.

Table 1. Planning, Design, Permit, and Construction Schedule

	2006				2007				2008				2009				2010			
	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND
NPCC STEP REVIEW																				
PLANNING																				
DESIGN																				
PERMITS																				
NEPA																				
ESA																				
Facility																				
CONSTRUCTION																				
Wenatchee																				
Methow																				

Key: Step 1 Step 2 step 3

A. SMOLT RELEASE

The release plan details shown below guide the calculation of program capital and operating costs.

Table 2. Release Plan Details

(in numbers of smolts released /1,000,000)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Wenatchee																					
Broodstock Dev																					
Phase I																					
Phase II	1.00	1.00	1.00	1.00	1.00																
Natural Production																					
Implementation						1.16	1.16	1.16													
Support Phase I									0.81	0.81	0.81	0.81	0.81	0.81							
Support Phase II															0.40	0.40	0.40	0.40	0.40	0.40	
Methow																					
Broodstock Dev																					
Phase I	0.50	0.50	0.50																		
Phase II				0.50	0.50	0.50															
Natural Production																					
Implementation							1.00	1.00	1.00												
Support Phase I										0.70	0.70	0.70	0.70	0.70	0.70						
Support Phase II																0.35	0.35	0.35	0.35	0.35	0.35
TOTAL	1.50	1.50	1.50	1.50	1.50	1.66	2.16	2.16	1.81	1.51	1.51	1.51	1.51	1.51	1.10	0.75	0.75	0.75	0.75	0.75	0.35

B. FACILITY DEVELOPMENT

Development of the project requires that several evaluation processes be conducted, that designs be completed, and that permits be obtained for new facilities. These new facilities include a small adult holding and incubation site, two constructed habitats, and five acclimation sites involving varying degrees of construction.

Table 3 shows the planned schedule for each of the facility development elements and tasks that support the completion of those elements. The tasks are described in more detail in Chapter IV.A.1 of this Appendix.

Table 3. Planning, Design, Permit, and Construction Detailed Schedule

ELEMENTS Tasks	2006				2007				2008				2009				2010			
	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND
NPPC STEP REVIEW																				
Step 1																				
Step 2																				
Step 3																				
PLANNING																				
Master Plan Support																				
Site Data Collection																				
FACILITY DESIGN																				
Preliminary																				
Wenatchee																				
Methow																				
Final																				
Wenatchee																				
Methow																				
PERMITS																				
Surveys, Studies																				
Cultural Resources																				
Wetlands, Plants																				
Flood																				
Ground Water																				
Surface Water																				
Listed Species																				
Other Species																				
Discharge Impacts																				
NEPA																				
Scoping, SOW																				
Draft EIS																				
Final EIS, ROD																				
ESA																				
Edit HGMP, BA																				
Public, Agency Review																				
Facility																				
Water Rights																				
JARPA																				
Critical Areas																				
Construction																				
CONSTRUCTION																				
Real Estate Appraisals																				
Environ. Land Audits																				
Land Purchase																				
Wenatchee Con.																				
Methow Con.																				

Key: Step 1



Step 2



step 3



This is an aggressive schedule that assumes that the Step 1 review of the Master Plan will be completed by the end of December, 2006; that the NEPA and ESA permit processes are completed in 18 months from completion of the STEP 1 review; that the Step 2 review process takes 3 months; and that the Step 3 review can be completed in the third quarter of 2009. To meet this timetable, it is expected that fast

track planning and design procedures will be used. For example, facility permitting time periods can be shortened by submitting water rights applications prior to preliminary designs being completed and land purchase can be expedited by conducting preliminary discussions with land owners at proposed facility locations prior to a Step 3 decision.

C. MONITORING AND EVALUATION

Table 4 shows the planned schedule for the monitoring and evaluation tasks. The tasks are described in detail in Chapter 7 of the master plan.

Table 4. Monitoring and Evaluation Detailed Schedule

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PROJECT PERFORMANCE INDICATORS																					
Smolt Survival																					
In-Pond Survival																					
Pre-Rel. Fish Cond.																					
Run Timing																					
Spawn Esc and Dist.																					
Natural Smolt Prod.																					
Egg to Emig. Surv.																					
Adult to Adult Prod.																					
Harvest Rates																					
SPECIES INTERACTIONS																					
NTTOC Status																					
Size Structure																					
Abund. and Surv.																					
Distribution																					
Mech. Of Interaction.																					
Competition																					
Predation																					
GENETIC ADAPTABILITY																					
Morphometrics																					
Genetic Monitoring																					
Sperm Cryopres.																					

Wenatchee Broodstock Dev. Phases
Wenatchee Broodstock Nat. Prod. Phases

Methow Broodstock Dev. Phases
Methow Broodstock Nat. Prod. Phases

No PIT tags

IV. PROJECT COSTS

The estimating procedures used for Construction and Capital Equipment are detailed in the B and C Appendices. The capital cost element, *Planning, Design, and Permits*, and all the operating cost elements, which include *Operating and Maintenance*, *Monitoring and Evaluation*, and *General and Administrative*, have estimating procedures described in the sections below. The methods used produce an accuracy higher than +/- 35% to 50%, the level suggested in the 3 Step review process description (NPPC 2001). That document states that for the conceptual level proposals required of a master plan, "Cost estimates are general and often are based on costs from previous projects and comparable construction costs." For both capital cost elements, *Planning Design, and Permits* and *Facilities and Capital Equipment*, average values for similar facility projects were compared with site-specific cost estimates to improve accuracy.

Operating cost estimates also have a high degree of accuracy. They are based on the actual costs of operating the feasibility phase of the MCCRP. The cost structure of all the elements of operation are well defined through these current project budgets and are adjusted to predict future costs.

Estimated expense totals are shown in the following tables both with and without cost sharing amounts. Project support currently being provided (detailed in the following sections) is expected to continue in future years and is shown in red in the tables. In addition, there may be other funding contributions that are not listed. For example, land purchase funds for sites that have high value as habitat may be provided by resource agencies and groups. Also, the Grant, Chelan and Douglas County PUDs are obligated to support the coho reintroduction program as part of their Hatchery Compensation Plan (HCP) mitigation responsibility when this program receives the authority and funding from Northwest Power and Conservation Council (NPPC) and Bonneville Power Administration (BPA) to continue its operation, resulting in additional cost-sharing.

A. CAPITAL COSTS

The conceptual design for the natural production phases proposes that lower river hatcheries rear 85% of the program fish and that two new constructed habitats on the Methow would rear the remaining 15%. A spawning and early incubation facility is proposed near Dryden in the Wenatchee basin.

The acclimation system features multiple sites, with emphasis placed on the use of existing ponds that have gravity flow, and surface water supplies. In both Wenatchee and Methow basins, 9 release sites form the recommended natural production acclimation system for a project total of 18 sites. Two of these sites are the constructed habitats; of the other 16, 7 exist and have previously been used by the MCCRP.

The total estimated project capital cost is \$9,922,000. Planning, design, and permitting make up \$1,916,000 of this total and facility construction, land purchase, and capital equipment the remaining \$8,006,000.

1. Planning, Design, and Permits

Table 5 summarizes the costs of the planning, design, and permitting element of the proposed program by task, by NPCC step, and by year. Table 6 details these costs and their timing. Yakama Nation personnel will be major contributors to these efforts; their costs are included under *Operating Costs, General and Administrative*.

Table 5. Planning, Design and Permits Cost Summary

SUMMARY BY TASK	
PLANNING	\$ 388,000
DESIGN	\$ 652,975
PERMITS	\$ 875,355
SUMMARY BY STEP	
STEP 1	\$ 40,000
STEP 2	\$ 1,325,840
STEP 3	\$ 550,490
SUMMARY BY YEAR	
2006	\$ 40,000
2007	\$ 993,590
2008	\$ 469,872
2009	\$ 412,867
TOTAL	\$ 1,916,330

Table 6. Planning, Design, and Permits Detailed Cost Schedule
(in Dollars /1,000)

	2006				2007				2008				2009			
	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND
PLANNING																
Coordinate Step Process	10.0	10.0	10.0	10.0	13.3	13.3	13.3	13.3	13.3	13.3		7.0	7.0	7.0	7.0	
Site Data Collection					40.0	40.0	40.0	40.0	40.0	40.0						
FACILITY DESIGN																
Preliminary																
Wenatchee					24.6	24.6	24.6	24.6	24.6	24.6						
Methow					11.7	11.7	11.7	11.7	11.7	11.7						
Final																
Wenatchee												73.8	73.8	73.8	73.8	
Methow												35.0	35.0	35.0	35.0	
TOTAL PLAN. & DESIGN	10.0	10.0	10.0	10.0	89.6	89.6	89.6	89.6	89.6	89.6	0.0	115.8	115.8	115.8	115.8	0.0
PERMITS																
Surveys, Studies																
Cultural Resources						6.0	6.0									
Wetlands, Plants						6.0	6.0									
Flood						10.0	10.0									
Ground Water Withdrawal						10.0	10.0									
Surface Water Withdrawal						12.5	12.5									
Listed Species					3.3	3.3	3.3	3.3	3.3	3.3						
Survey and Manage Species					3.3	3.3	3.3	3.3	3.3	3.3						
Discharge Impacts					3.3	3.3	3.3	3.3	3.3	3.3						
NEPA																
Scoping, SOW					50.0											
Draft EIS						100.3	100.3	100.3								
Final EIS, Record of Decision								110.0	110.0							
ESA																
Edit HGMP, BA					6.7	6.7	6.7									
Public, Agency Review								3.3	3.3	3.3						
Facility																
Water Rights					5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
JARPA												6.0	6.0	6.0	6.0	
Critical Areas												5.1	5.1	5.1	5.1	
Construction												5.3	5.3	5.3	5.3	
TOTAL PERMITS	0.0	0.0	0.0	0.0	72.1	167.0	167.0	229.1	128.8	18.8	5.5	21.8	21.8	21.8	21.8	0.0
TOTAL PLAN, DESIGN, PERMITS	10.0	10.0	10.0	10.0	161.7	256.6	256.6	318.7	218.4	108.4	5.5	137.6	137.6	137.6	137.6	0.0

Key: Step 1 Step 2 Step 3

Following are notes on the *Planning, Design, and Permits* tasks:

PLANNING

- Coordinate Step Process - these are the costs for subcontractors to support completion of the master plan, preliminary design, NEPA and ESA evaluations, and final design.
- Site Data Collection - data (listed in the C. appendices) will be collected during the preliminary design phase. These costs are derived from similar costs for developing the current MCCRCP facilities.

FACILITY DESIGN

- Preliminary - Preliminary and final design costs are estimated at 15% of construction costs. Of the 15%, preliminary design will be one-third of this amount.
- Final - these costs include preparation of engineering designs, value engineering reviews, bid documents, and management of the contractor bid process.

PERMITS

A full list of fish facility permits is shown in Attachment 2 of this document. Every permit listed will not be required for each site due to differing levels of development and local conditions. NEPA and ESA work will be done concurrently. Much of the effort will be interrelated, with listed species impacts forming an important part of NEPA analyses.

Many of the permit and study costs are derived from similar projects completed by the MCCRCP and Yakama Nation in the recent past. These include: ground water withdrawal impact studies, well construction and water rights applications for the MCCRCP Rohlfing and Two Rivers sites; flood studies, groundwater studies, and facilities permit applications for the YKFP (Yakama Klickitat Fisheries Project) Wahkiacus

Hatchery and Acclimation Facility; acclimation discharge impact study done on the MCCRP Rohlfing, Butcher, and Beaver sites; cultural resources, plant, and wetland evaluations done for several potential acclimation sites in the Wenatchee watershed; floodplain and wetland assessments, Joint Aquatic Resources Permit Application (JARPA) and environmental checklist applications submitted for the MCCRP Two Rivers and Rohlfing sites; and JARPA applications submitted for the MCCRP Beaver Creek and Mountain Home sites.

Environmental review cost estimates were provided by Nancy Weintraub (BPA, Team Lead for Fish and Wildlife Environmental Review). The BPA estimate of \$750,000 includes NEPA and ESA reviews, and the surveys and studies listed in Table 6.

Permit task descriptions:

- Surveys, Studies
 - Cultural Resources — 3 separate surveys of multiple sites are assumed.
 - Wetlands, Plants — 3 separate surveys of multiple sites are assumed.
 - Flood — 3 separate surveys of multiple sites are assumed.
 - Ground Water Withdrawal — 4 of the sites require ground water withdrawal studies. These include the digging of test pits, as well as evaluating potential yields and impacts on both the environment and other users of the planned withdrawal. Well construction is included under *Capital Costs*.
 - Surface Water Withdrawal — 5 sites plan on new surface water withdrawals. These impacts on stream flow will need to be studied.
 - Listed Species — to determine the presence of ESA-listed species at or near the facilities and the potential impacts from construction and operation.
 - Other Species — work on non-listed species will be done in conjunction with listed species.
 - Discharge Impacts — the effect of feeding coho in existing natural ponds will be investigated.
- NEPA
 - Scoping, SOW — this first step in the NEPA process includes preparing a Notice of Intent and a Statement of Work, meeting with cooperating agencies, and holding scoping meetings.
 - Draft Environmental Impact Statement (EIS) — prior to drafting the EIS, scoping comments will be reviewed, issues identified, and public and agency input evaluated. Results from surveys and studies will be included in the draft EIS.
 - Final EIS, Record of Decision — comments received from public review of the draft EIS are evaluated during production of the final EIS.
- ESA
 - Prepare a Hatchery and Genetics Management Plan (HGMP) and Biological Assessments (BAs) — the MCCRP HGMP will need to be rewritten to reflect program changes; assessments of the impacts of the proposed master plan facilities and activities impacting listed species will need to be prepared.
 - Public and Agency Review
- Facility.
 - Water Rights — results from the completion of the ground water and surface water withdrawal studies will be used to support the water rights applications.
 - JARPA — the Joint Aquatic Resources Permit Application includes several separate permits (see Attachment 2).
 - Critical Areas — the proposed facilities are near water, requiring shorelines and critical areas permits.
 - Construction — local grading and building approvals are required.

As a check of these estimates, a comparison of permit costs with other projects can be made. The permit total for the MCCRP is estimated to be \$875,000 (see Table 5). Costs for other projects are:

- NE Oregon Hatchery Project: Approximately \$1,000,000 (personal communication Mickey Carter, Supervisory Environmental Protection Specialist, BPA)
- Average EIS costs of a wide range of Department of Energy (DOE) projects completed in 2005 (DOE 2005): \$1,434,000.

The MCCRP permit costs are expected to be lower than these values because significant amounts of environmental evaluation have been completed during the feasibility phase of this project. Impacts on listed fish have been studied for several years by the MCCRP monitoring and evaluation program in coordination

with the project's Technical Work Group (TWG), members of which helped guide study designs and reviewed results. Also, work done during master plan development will be applied to permitting, further reducing costs.

2. Facilities and Capital Equipment

This cost element includes land purchase, facility construction, and capital equipment used in the operation of the sites. Two estimating methods were used. One is based on the average values of similar projects and is detailed in Appendices B.1 and B.2. The other is based on site-specific facility designs and is shown in Appendices C.1, C.2, C.3, and C.4. The averaging method uses actual facility costs, reducing variations that result from site properties that are not known until preliminary design studies are completed (such as ground water depths, soil conditions, etc.). The site-specific cost estimates take into account unique features of sites that are known, such as access road lengths, piping distances, etc. The site specific costs were used in the capital cost estimates in Table 7; the average values provide a comparison.

Land purchases totaling \$1,789,500 are included in these capital costs. Purchases are planned at 5 sites: Dryden, Tall Timber, Chikamin, Goat Wall, and Heath Ranch. Because most of these sites are in areas that have important habitat for coho and other species, other agencies such as WDFW may be willing to share costs of land purchases. All other sites (acclimation) are either on private land that will be leased or on federal/state land where land use agreements will be obtained.

a. Construction and Land

Table 7. Facility Construction Cost Schedule

	2009	2010	2011	2012
MULTI-FUNCTION				
Dryden		\$ 1,897,072		
Eightmile			\$ 1,024,571	
Heath			\$ 551,651	
ACCLIMATION				
Tall Timber		\$ 1,144,508		
Chikamin		\$ 733,047		
Chiwawa		\$ 459,603		
Misc Wenatchee		\$ 93,600		
Lincoln			\$ 254,183	
Goat Wall			\$ 536,817	
Misc Methow			\$ 30,680	
TOTAL		\$ 4,327,830	\$ 2,397,902	

Several proposed facilities have multiple functions: the adult holding, spawning, and incubation facility near Dryden in the Wenatchee basin (see Appendix C.1 for design and cost details) and two constructed habitats proposed as rearing/acclimation sites in the Methow (see Appendix C.2). Existing hatcheries that have no associated capital cost will provide the bulk of pre-smolt production.

These multi function sites have the following design features:

- Dryden – an incubation building, spawning shed, and 3 concrete adult holding raceways supplied by water from a constructed infiltration gallery.
- Eightmile – a constructed habitat supplied with a surface water intake on Eightmile Creek and ground water from existing and new wells.
- Heath – an existing habitat with a new outlet structure for controlling and monitoring fish passage.

Like other aspects of the proposed program, acclimation also relies on existing sites with little capital cost. The 5 new facilities (see Appendices C.3 and C.4 for design and cost details) have low costs relative to other acclimation sites in the region due to their use of constructed or existing natural ponds and water supplies where available.

The acclimation sites that require major construction have the following design features:

- Tall Timber — this is planned to be a fully constructed acclimation site, with two ponds supplied by pumped surface and ground water.
- Chiwawa — second-use or excess water from the existing acclimation site will operate two new coho acclimation ponds.
- Chikamin — a new large pond and a gravity flow water intake will be constructed.
- Lincoln — existing ponds will be supplied by new wells.
- Goat Wall — a small well and an existing spring will supply a new acclimation pond.

b. Capital Equipment

Capital equipment is assumed to have a 10 year average life. Replacements at this interval are included in the cost schedule below.

Table 8. Capital Equipment Cost Schedule
(in Dollars /1,000,000)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
CAPITAL EQUIPMENT																					
M&E Equipment		0.02										0.02									
O&M Equipment		0.01	0.02									0.01	0.02								
Multi-Function Fac.					0.20	0.13									0.20	0.13					
Acclimation Fac.					0.13	0.12									0.13	0.12					
TOTAL	0.00	0.04	0.02	0.00	0.33	0.25	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.33	0.25	0.00	0.00	0.00	0.00	0.00

Capital Equipment costs include the following:

- M&E Equipment – the main capital purchases for the Monitoring and Evaluation program are two rotary smolt traps and electrofishing gear.
- O&M Equipment – fish transport tanks and CWT detection systems are needed for broodstock collection.
- Multi-Function Facility Equipment – major equipment to be used at the adult holding and incubation facility and the constructed habitats includes chillers, pumps, generators, and trailers.
- Acclimation Facility Equipment - capital equipment needed at the acclimation sites includes pumps, generators, and trailers.

B. OPERATING COSTS

1. Operation and Maintenance

a. Rearing

The rearing costs estimated here are for production of fish to pre-smolt size while in hatcheries. Transportation of these smolts is included, as is adult holding, spawning, and incubation of Methow brood under contract with the U.S. Fish and Wildlife Service (USWFS). Wenatchee brood and egg handling will be done by Yakama Nation personnel when the Dryden facility is completed and is included in section B1.b (Other O&M).

Hatchery rearing cost estimating procedures are detailed in Appendix B.1. They are based on the average operating costs of five existing Columbia River hatcheries. A formula was developed using these data that allows predictions to be made for the cost of producing various numbers of fish.

$$340,000 \times [0.4 + 0.6 \times ((\text{number of fish produced}) / 1,000,000)]$$

Reference comparisons on the accuracy of this formula reveal that it matches the current operating costs for full hatcheries, and it also compares closely with the amounts currently being paid by the MCCRCP.

This same formula is applied to existing hatcheries, with the exception of Willard, and to the constructed habitats. The Willard costs are independent of the number of fish produced since the entire hatchery is dedicated to MCCRCP coho production. The habitats will have lower culturing costs than hatcheries due to natural management approaches; however, predator control methods that have been effective at existing acclimation sites include non-lethal hazing by personnel. This will increase overall operating cost back to levels that are similar to conventional hatcheries.

The last cost element in the table below is cost sharing. This is the amount of contribution being made by fishery agencies to the MCCRCP for hatchery operations. NOAA, through the Mitchell Act, supports operation of the Willard (\$128,000 per year) and Cascade (\$277,000 per year) hatcheries. The USFWS also contributes a portion (assumed to be 10% of the total, or \$31,400 per year) of the maintenance fees for operating the Leavenworth, Entiat, and Winthrop hatcheries.

Table 9. Rearing Cost Detail
(in Dollars /1,000,000)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
HATCHERIES																					
Cascade	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.27	0.22	0.22	0.22	0.22	0.22	0.13
Willard	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32							
Winthrop	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Hauling	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Adult Hold., Spaw	0.29	0.29	0.29	0.29	0.29	0.31	0.40	0.40	0.34	0.29	0.29	0.29	0.29	0.29	0.22	0.16	0.16	0.16	0.16	0.16	0.09
CONSTRUCTED HABITATS																					
Eightmile							0.18	0.18	0.18	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15
Heath Ranch							0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14
SUBTOTAL	1.10	1.09	1.09	1.09	1.09	1.12	1.55	1.55	1.48	1.41	1.41	1.41	1.41	1.41	1.00	0.87	0.87	0.87	0.87	0.87	0.71
COST SHARING																					
Rearing	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.42	0.38	0.38	0.38	0.38	0.38	0.29
TOTAL	0.66	0.66	0.66	0.66	0.66	0.68	1.11	1.11	1.05	0.97	0.97	0.97	0.97	0.97	0.58	0.49	0.49	0.49	0.49	0.49	0.42

b. Other O&M

This cost element covers all the facility operating and maintenance costs except rearing. These include the expenses of operating acclimation, brood collection, spawning, and incubation facilities. Estimates are based on recent MCCRCP expenses. The 2006 budget was used as the basis for predicting the costs of future program phases. Adjustments were made to reflect changes in the number of facilities operated and numbers of fish handled. This total does not include: rearing, planning or design costs, monitoring and evaluation, or general and administrative costs.

During the Broodstock Development Phases (BDP1 and 2), Methow costs will be lower than in the Wenatchee. During BDP1, four acclimation sites will operate in the Wenatchee and one in the Methow. During BDP2, six are planned for the Wenatchee and three in the Methow. During the natural production phases, coho will be released from 9 sites in both the Wenatchee and Methow basins. As release numbers are reduced in future natural production phase years, the number of acclimation sites used will also be reduced.

Table 10. Operation and Maintenance Cost Detail
(in Dollars /1,000,000)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Acclimation																					
Personnel	0.17	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Operating Supplies	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Vehicles	0.02	0.03	0.03	0.03	0.03	0.04	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03
Land Agreements	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02
Broodstock Collection																					
Personnel	0.16	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Operating Supplies	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Vehicles	0.03	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.03	0.03	0.03	0.03	0.03	0.02
Spawning																					
Personnel	0.03	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.01
Operating Supplies	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Vehicles	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Incubation																					
Personnel	0.05	0.06	0.06	0.06	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.01
Operating Supplies	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Vehicles	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
TOTAL	0.52	0.59	0.59	0.59	0.64	0.67	0.74	0.74	0.74	0.73	0.72	0.66	0.66	0.66	0.69	0.63	0.63	0.63	0.63	0.63	0.47

2. Monitoring and Evaluation

Estimates of the program costs for the monitoring and evaluation program element are based on current MCCRPs expenses. The 2006 monitoring and evaluation budget, with tagging excluded, is \$290,000. This budget was divided by task, and the cost for each was extended to future years. Estimates were made for tasks that will not begin until after 2006. Coded wire tagging costs were changed proportionate to the numbers of fish released per year. PIT tags are expected to remain approximately the same, independent of total release numbers.

Monitoring & Evaluation (M&E) costs are shared with WDFW, the HCP hatchery compensation M&E plan, and BPA project number 2003-017-00. Smolt traps at Monitor, Chiwawa, White, Upper Wenatchee, Methow, and Twisp, currently funded through alternate sources, are an integral part of the proposed M&E plan; they would provide data to monitor natural coho production and Non-Target Taxa Of Concern (NTTOC) status. The total on the last line of Table 11 shows the estimated yearly sum for M&E with these cost-share amounts provided by other agencies removed (shown in red).

Table 11. Monitoring and Evaluation Cost Detail
(in Dollars /1,000,000)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PROJECT PERFORMANCE INDICATORS																					
Smolt Survival	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	0.04	-	-	0.04	-	-	0.04	-	-	0.04	-	-
In-Pond Survival	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.00
Pre-Rel. Fish Cond.	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Run Timing	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.00
Spawn Esc and Dist.	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Natural Smolt Prod.	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.01
Egg to Emig. Surv.	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.01
Adult to Adult Prod.	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Harvest Rates	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
SPECIES INTERACTIONS																					
NTTOC Status																					
Size Structure	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-
Abund. and Surv.	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-
Distribution	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-
Mech. Of Interaction.																					
Competition	-	-	-	-	-	0.02	0.02	0.02	0.02	0.02	0.02	-	-	-	-	-	-	-	-	-	-
Predation	-	-	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	-	-	-	-	-	-	-	-	-	-
GENETIC ADAPTABILITY																					
Morphometrics	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.01
Genetic Monitoring	0.06	-	-	0.06	-	-	0.06	-	-	0.06	-	-	0.06	-	-	0.06	-	-	0.06	-	-
Sperm Cryopres.	-	0.02	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	0.02	0.02	-
SMOLT TRAPS																					
Operation and Maint.	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
SUBTOTAL	1.01	1.17	1.17	1.21	1.15	1.19	1.26	1.19	1.13	1.26	1.13	0.94	1.06	0.94	0.94	1.06	0.94	0.95	1.07	0.95	0.86
COST SHARING																					
Smolt Trap	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
TOTAL	0.24	0.39	0.39	0.44	0.38	0.42	0.48	0.42	0.36	0.48	0.36	0.16	0.28	0.16	0.16	0.28	0.16	0.18	0.30	0.18	0.08

3. General and Administrative

The general and administrative cost element covers expenses that are spread over all project functions. These include: program administration; support for planning and design; indirect services; and running project offices. Numbers are based on current MCCRP expenses.

Table 12. General and Administrative Cost Detail
(in Dollars /1,000,000)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
G&A																					
Administration	0.09	0.09	0.09	0.09	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.07
Office, Facility Maint.	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05
Indirect	0.20	0.20	0.20	0.20	0.21	0.22	0.24	0.24	0.24	0.24	0.24	0.22	0.22	0.22	0.23	0.21	0.21	0.21	0.21	0.21	0.16
TOTAL	0.34	0.34	0.34	0.34	0.37	0.39	0.43	0.43	0.43	0.42	0.42	0.39	0.39	0.39	0.40	0.37	0.37	0.37	0.37	0.37	0.27

C. TOTAL PROJECT COST SCHEDULE

The yearly cost for all project elements is shown in the Table below, for the 20-year project lifetime. The values on the last line show the estimated total yearly project sum with cost-share amounts provided by other agencies removed (shown in red).

Table 13. MCCRCP Total Project Cost Schedule
(in Dollars /1,000,000)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
CAPITAL																					
Plan, Design, Per.	0.04	0.99	0.47	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	0.00	0.00	0.00	0.00	4.33	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital Equipment	0.00	0.04	0.02	0.00	0.33	0.25	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.33	0.25	0.00	0.00	0.00	0.00	0.00
TOTAL CAPITAL	0.04	1.03	0.49	0.41	4.66	2.65	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.33	0.25	0.00	0.00	0.00	0.00	0.00
OPERATING																					
Rearing	1.10	1.09	1.09	1.09	1.09	1.12	1.55	1.55	1.48	1.41	1.41	1.41	1.41	1.41	1.00	0.87	0.87	0.87	0.87	0.87	0.71
Other O&M	0.52	0.59	0.59	0.59	0.64	0.67	0.74	0.74	0.74	0.73	0.72	0.66	0.66	0.66	0.69	0.63	0.63	0.63	0.63	0.63	0.47
M&E	1.01	1.17	1.17	1.21	1.15	1.19	1.26	1.19	1.13	1.26	1.13	0.94	1.06	0.94	0.94	1.06	0.94	0.95	1.07	0.95	0.86
Tagging	0.48	0.48	0.48	0.48	0.48	0.52	0.65	0.65	0.48	0.48	0.40	0.40	0.48	0.40	0.29	0.28	0.20	0.20	0.28	0.20	0.09
G&A	0.34	0.34	0.34	0.34	0.37	0.39	0.43	0.43	0.43	0.42	0.42	0.39	0.39	0.39	0.40	0.37	0.37	0.37	0.37	0.37	0.27
TOTAL OP.	3.46	3.67	3.67	3.71	3.74	3.89	4.62	4.56	4.26	4.29	4.09	3.80	4.00	3.80	3.33	3.21	3.01	3.02	3.22	3.02	2.40
TOTAL COST	3.50	4.70	4.16	4.13	8.4	6.5	4.62	4.56	4.26	4.29	4.09	3.83	4.02	3.80	3.67	3.46	3.01	3.02	3.22	3.02	2.40
Rear. Cost Share	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.42	0.38	0.38	0.38	0.38	0.38	0.29
M&E Cost Share	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
TOTAL COST	2.29	3.49	2.95	2.92	7.19	5.33	3.41	3.35	3.05	3.08	2.88	2.62	2.81	2.58	2.47	2.31	1.86	1.87	2.07	1.87	1.33

Notes:

- Abbreviations used in the table: O&M — Operation and Maintenance; G&A — General and Administrative; M&E — Monitoring and Evaluation.
- Capital construction costs are assumed to be incurred one year before site operation begins.
- Cost sharing support for the project is removed from the total to produce the values in the last row.
- M&E cost-share represents only current cost share opportunities and does not include HCP coho mitigation.
- Capital costs do not include depreciation. All amounts are in 2005 dollars and are not inflated.

V. ATTACHMENTS

1. REFERENCES

DOE (U.S. Department of Energy) 2005. Office of Environment, Safety, and Health. NEPA Quarterly Report. June 1, 2005; Issue No.43.

(NPPC) Northwest Power Planning Council. 2001. Three-Step Review Process as approved by Northwest Power Planning Council on October 18, 2001.

Murdoch, K.G, C.M. Kamphaus and S.A. Prevatte. 2004. Mid-Columbia Coho Reintroduction Feasibility Study: 2002 Annual Monitoring and Evaluation Report. *Prepared For:* Bonneville Power Administration. Project Number 1996-040-00. Portland, OR.

MCCRCP (Mid-Columbia Coho Reintroduction Program) 2005. Mid Columbia Coho Budget, Project No.1996-040-00 Intergovernmental Contract No. 00016988, February 1, 2006 to January 31, 2007.

2. PERMIT SUMMARY

NAME	AGENCY	COMMENTS
SEPA and NEPA		
ENVIRONMENTAL CHECKLIST (SEPA)	Lead Agency	Agency makes Determination of Significance (DS) decision based on checklist. DS (forces an EIS), Mitigated DNS, or DNS issued
DRAFT EIS	Lead Agency	Scoping helps determine the content of the EIS
FINAL EIS	Lead Agency	Addresses comments received during 45-day draft EIS comment period
ROD	Lead Agency	Record of Decision
JARPA - Joint Aquatic Resource Permits Application		
HYDRAULIC PROJECT APPROVAL (HPA)	WDFW	Use, divert, obstruct, or change natural flow Screens: 0.4 fps, 1.75mm bar, 2.4mm perf plate, 2.2mm wire mesh
SHORELINES SUBSTANTIAL DEVELOPMENT	Local Govt	In 100-yr. floodplain or within 200 ft. of high water > \$2,500
COMPLIANCE WITH CRITICAL AREAS STANDARDS	Local Govt	Critical areas are designated by local governments
FLOODPLAIN MANAGEMENT	Local Govt	
401 WATER QUALITY CERT.	WDOE	Applicant for Fed license or permit for filling or exc. in water or wetlands
EXCEEDANCE OF WATER QUALITY STANDARDS	WDOE	Temporary exceedance (may not be included in new JARPA)
SECTION 404 PERMIT	US ACE	Locating structures, filling, or excavating in water or wetlands
OTHER STATE PERMITS		
ARCHAEOLOGICAL EXCAVATION	Ofc of Arch. & Historic Pres.	Fed projects require section 106 review
NPDES - GENERAL PERMIT FOR UPLAND HATCHERIES	WDOE	May not be needed for <20,000lbs. fish/yr. or <5,000lbs of feed/mo.
PRELIMINARY WATER RIGHT PERMIT	WDOE	Required for drilling and testing
CERT. OF WATER RIGHT	WDOE	Water use permit is the original application
CHANGE OF WATER RIGHT	WDOE	Location or use changes require permit
FISH/EGG TRANSPORT	WDFW	Main tool for WDFW to control movement of fish
OTHER LOCAL PERMITS		
CONSTRUCTION	Local govt	Building permits (including grading), vary by county
CONDITIONAL USE	Local govt	Activities use subject to public hearings
ZONING CODE VARIANCE	Local govt	
ESA RELATED PERMITS		
BIOLOGICAL EVALUATION (BE or BA)	USFWS, NMFS	Consultation used to show minimal impacts; if services agree, a concurrence letter is written
BIOLOGICAL OPINION (BO)	USFWS, NMFS	Issued after formal consultation
HATCHERY & GENETICS MGMT PLAN (HGMP)	NMFS	Replaces the BE for NMFS purposes
OTHER		
WETLAND AND FLOODPLAIN ASSESSMENT	BPA	Normally part of the NEPA document; requirement for federally funded projects
ENVIRONMENTAL LAND AUDIT	BPA	